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UNITED STATES DEPARTMENT OF AGRICULTURE
ECONOMIC RESEARCH SERVICE

MEASURING ECONOMIC GROWTH OF THE COMMUNITY
OR SMALL AREA*

by

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CATALOGING PREP

Regrettably, the failure of earlier expectations for a census at mid-decade to materialize means that fresh data in detail for the community or small area 2/ must await returns from the 1970 Population Census. The prospective link-up of our 3 major data-generating systems -- census, social security and internal revenue -- offers infinite and intriguing possibilities for future local data coverage on an annual basis. Yet, reviewing the scheduling of new facilities as now planned, attaining this milestone in the history of statistical progress also is several years in the offing -- certainly sometime after 1970.

Meanwhile, enthusiasm for today's exciting and sophisticated impact and development models has been tempered by mounting concern by economists, regional scientists and others over budgetary and other constraints on constructing matrices sufficiently dynamic and comprehensive to face up to analytical requirements. As a result, local planning and development officials still must rely mainly on reports of covered employment, population estimates, and similar statistics -- variously incomplete and inconsistent as they may be -- for up-to-date information for program formulation and review purposes.

This morning's discussion will begin with a few remarks about how we are using such statistics, first, to devise inexpensive but reasonably accurate measures or barometers of local change, and second, to extend these initial approximations to gain additional insight into the forces that are reshaping employment and other patterns throughout the United States. Some notion then will be given of what we have learned through this research and experimentation about the shifts in jobs and movements of people that have occurred in the past few years, and how they differ in kind and degree from those taking place in the earlier part of the postwar period. 3/

Amplifying on the use of this method of direct measurement as an alternative, the comparative recency of the challenges to employment growth and income distribution theory more or less dictates a detailed examination of weaknesses and deficiencies of determinations of multiplier effects.

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1/ Agricultural economist, Human Resources Branch, Economic Development Division.

2/ A county, a metropolitan region, or other multicounty group. Excluded for present purposes are municipalities and other subcounty jurisdictions for which secondary data generally are not currently published.

3/ This statement relies in part on materials to be included in a publication now in preparation "Changes in Employment and Earnings in Private Nonfarm Industries in the Recent as Compared with the Earlier Postwar Period, by Counties", by C. C. Haren and R. B. Glasgow.

Following this examination, attention is returned to direct mensuration. Similarities and contrasts between growth indicators -- nationally and at the county or local level -- are identified. Sources of data are listed, and reasons for recomposition, especially of population and income estimates, are noted. Because of this necessity for substantial restructuring of much of available small area data, the utility of both conventional and special controls in effecting improvements in quality are explored, as something separate and apart from their other values as individual indicators and as adjuncts to evaluation processes.

In recognition of the mobility of today's youth and lack of definitive information on their movements, special treatment is given to the problem of tracing their migration as they depart from home to jobs, school or military service.

Finally, concluding remarks spell out how the projected filling in of the gaps in current data would contribute to determining potential as well as present impacts of development activities -- public and private -- as they affect an area's economy, sometimes singly but generally in combination and over time as well.

RESEARCH AND EXPERIMENTATION IN PROGRESS

The 1960 Census of Population revealed the full extent of the shifts in people and jobs that had occurred in the preceding decade. Despite losses of population in New York, Chicago, and other major cities, expansions in the suburbs and additions to such cities as Atlanta, Houston, Dallas, Los Angeles, and San Diego contributed to a net increase from 91.6 to 115.8 million persons in the population of the Nation's metropolitan areas (3).

Some 230 cities -- about 16 percent of the total in nonmetropolitan areas with 5,000 or more people in 1960 -- lost population in the 10-year period (9). But the vast majority of the migrants to the metropolitan complexes came from farms and the nonfarm populations of farming, mining, and other rural and semirural communities.

Concern over the increasing plight of rural America resulted in the formation back in 1955 of a special development program in the Department of Agriculture. Similar awareness of the problem at State and local levels was translated into legislative and other action to promote area or community development, and provide various financial and other inducements to bring industry into local areas. Starting with the Area Redevelopment Act of 1961, a number of Federal programs were launched to reduce unemployment, create jobs and add needed public services and facilities in rural and other economically disadvantaged areas.

Accompanying these programs was a growing interest in the effectiveness with which these and similar objectives were accomplished. Then, too, the upturn in economic activity beginning in 1961 was showing signs of continuation and acceleration. By stimulating further decentralization and diversification of industry, national expansion could be expected to contribute in turn to additions of new or enlargements of existing payrolls available to a relatively broad range of both urban and rural communities.

In investigating possible sources of statistics for blueprinting anticipated changes, it was found that data on covered employment and earnings ^{4/} could be converted into a set of somewhat crude but easily constructed indicators of local

^{4/} As reported under the Old Age and Survivors Insurance (OASI) Program, and published in County Business Patterns, or recorded in connection with individual State Unemployment Compensation (UI) Programs (10).

CHANGES IN EMPLOYMENT IN PRIVATE NONFARM INDUSTRIES
UNITED STATES, BY COUNTIES, 1959-64

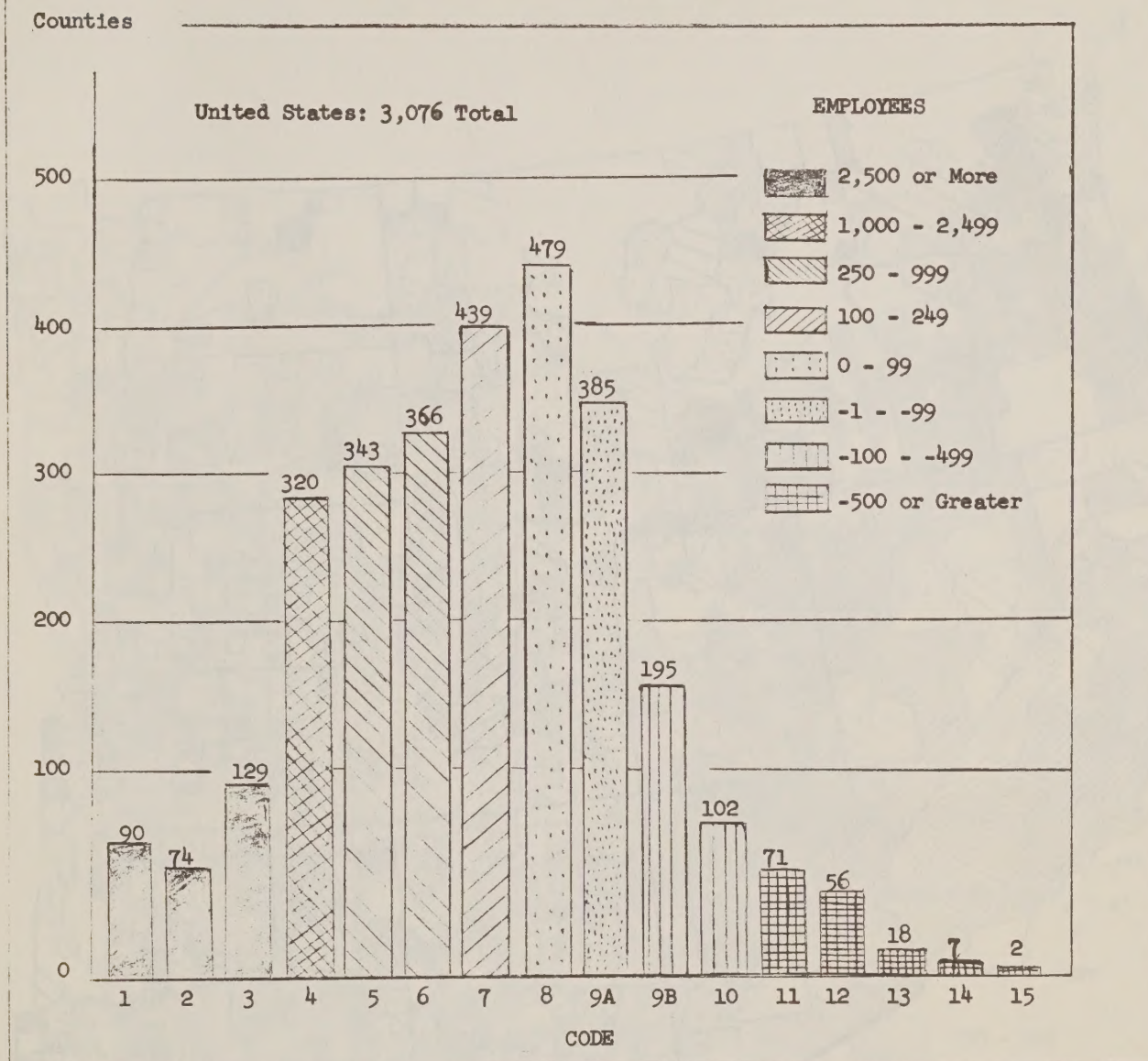


Figure 1

growth. With additional time and resources, statistics on total employment and labor force, population, incomes, etc., could then be brought to bear in (1) adding to the fund of data available to serve local needs, and (2) accounting for changes in localities in which, for example, fluctuations in employment in government or returns from farming exerted a significant import on the economy.

Although our interest was in what was happening in rural and semirural areas, no unqualified and fully acceptable definition was at hand for determining if some form of rural or an urban or metropolitan classification should apply. The need, moreover, to identify and explain various growth and other differentials required complete as opposed to partial coverage.

In addition to a forthcoming publication (reference footnote 3), present plans call for preparation of a statistical bulletin that will contain listings by counties of total labor force, population and other items for mid-decade, supplemented by tables carrying changes from 1959-60 benchmarks. In anticipation of possible future needs, data have been arranged for either periodic updating or special assembly by regions or subregions.

CHANGES IN EMPLOYMENT IN
PRIVATE NONFARM INDUSTRIES, 1959-64
(Western States)

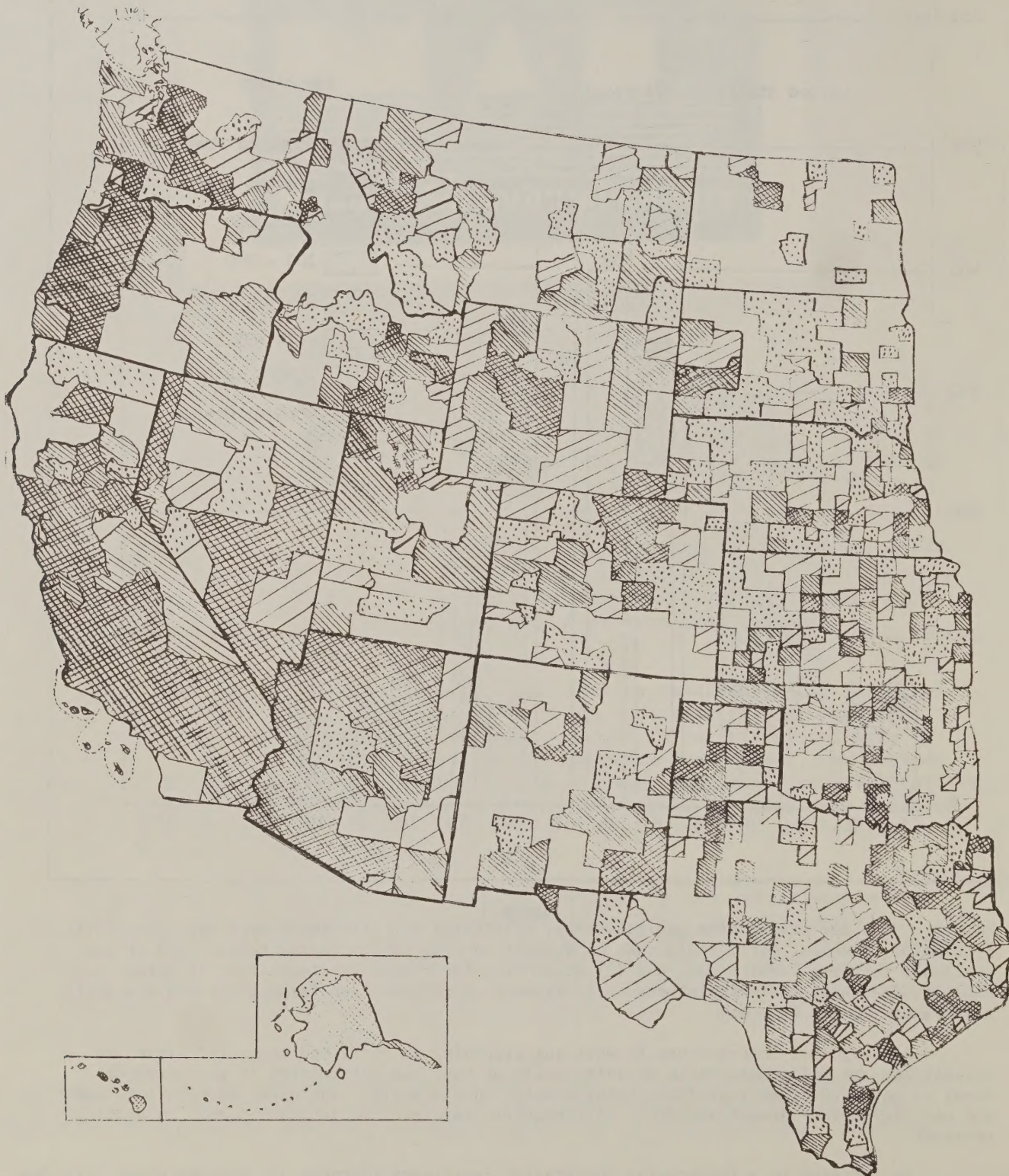


Figure 2

CHANGES IN EMPLOYMENT IN
PRIVATE NONFARM INDUSTRIES, 1959-64
(Eastern States)

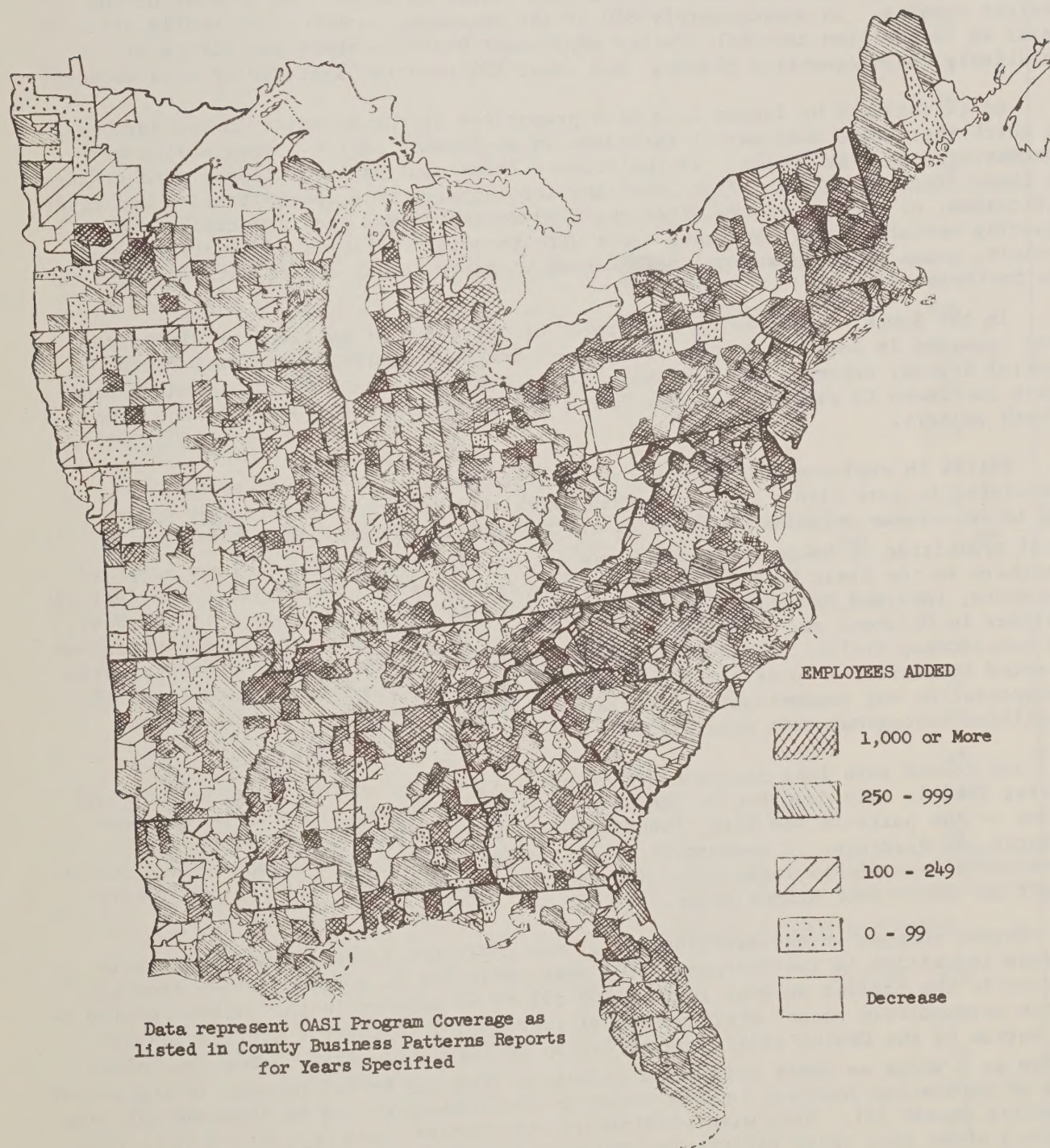


Figure 2

A CHANGING RURAL AND URBAN AMERICA

Throughout the United States, there were net additions between 1959 and 1964 of 2,500 or more private nonfarm wage and salary workers in nearly 300 counties, and of at least 1,000 workers in some 300 more (fig. 1). More than 700 counties gained from 250 to 999 extra workers. Altogether, approximately 1,760 counties -- representing 57 percent of the total -- registered appreciable to major gains in employment in the 5 years, a period that included the 1960 recession as well as 2 years of the current upswing. In approximately 860 of the remaining counties -- mostly strongly rural in composition and with limited employment bases -- there was little or relatively inconsequential change, and about 450 counties lost 100 or more workers.

As illustrated by figure 2, a high proportion of the counties in the Northeast in which there were substantial increases in employment in the 5-year period were concentrated in Megalopolis. In the Midwest Industrial Belt, additions were greatest in those areas benefiting from immediate and longer-term decentralization and diversification, or whose recovery after the 1960 recession had been especially rapid. Ignoring certain thinly populated areas with temporary influxes of construction workers, gains in the West were most marked in major growth areas, notably those in the Southwest.

In the South, increases in employment of pervasive or multicounty dimensions were recorded in additional areas throughout the South Atlantic and East South Central States, Arkansas and Louisiana (10). Generally expansions in Oklahoma and Texas continued to radiate out from Tulsa, Dallas, Fort Worth, Houston, and other growth centers.

Shifts in employment in central and western Oklahoma and Texas seemed associated in part with a type of growth by which the larger centers were gaining in importance relative to declines in the smaller places. That this form of local transition is taking place is borne out by what is now seen to have happened elsewhere in the Great Plains States, the comparatively unindustrialized sections of Minnesota, Iowa and Missouri, and throughout much of the broad expanse of the West. Declines in Oklahoma and Texas also stemmed from reduced employment in the petroleum and natural gas fields. Similar decreases in mining, lumbering, and other resource-oriented industries -- possibly coupled with isolation from today's main lines of transportation and communication -- explain persistent downturns in many other localities throughout this general area.

Job losses were less pronounced than earlier, but reductions extended to first quarter 1964 in many counties in the upper segment of the Appalachian Development Region -- the parts in New York, Pennsylvania, Ohio, Maryland, West Virginia, Kentucky and Virginia. A comparable situation prevailed in the Hudson-Mohawk and St. Lawrence Valleys of New York, Upper New England, and in parts of the Ozark, Ozark-Border and Upper Lake States areas.

Recent changes in the distribution of net additions to employment in private nonfarm industries in the Southeast (10) were reflected in a reduction -- from 68 percent in the earlier postwar years (1948-59) to 58 percent in the 1959-64 period -- in the metropolitan areas' share of annual increments. A current publication of the Bureau of the Census added substantiation by indicating that -- for the United States as a whole -- there had been a reduction from 2.3 to 1.9 percent in the annual rate of population increase in SMSA areas in the 1960-65 period as compared with the preceding decade (4). Now, with preliminary but complete coverage on which to rely, figure 3 shows that there definitely have been some significant changes in location -- rural as contrasted with urban and metropolitan -- where jobs are opening up and in turn to which people are gravitating.

**EMPLOYMENT CHANGES IN RELATION TO SIZE OF LARGEST 1960 POPULATION CENTER IN COUNTY
UNITED STATES, BY SPECIFIED POSTWAR PERIODS**

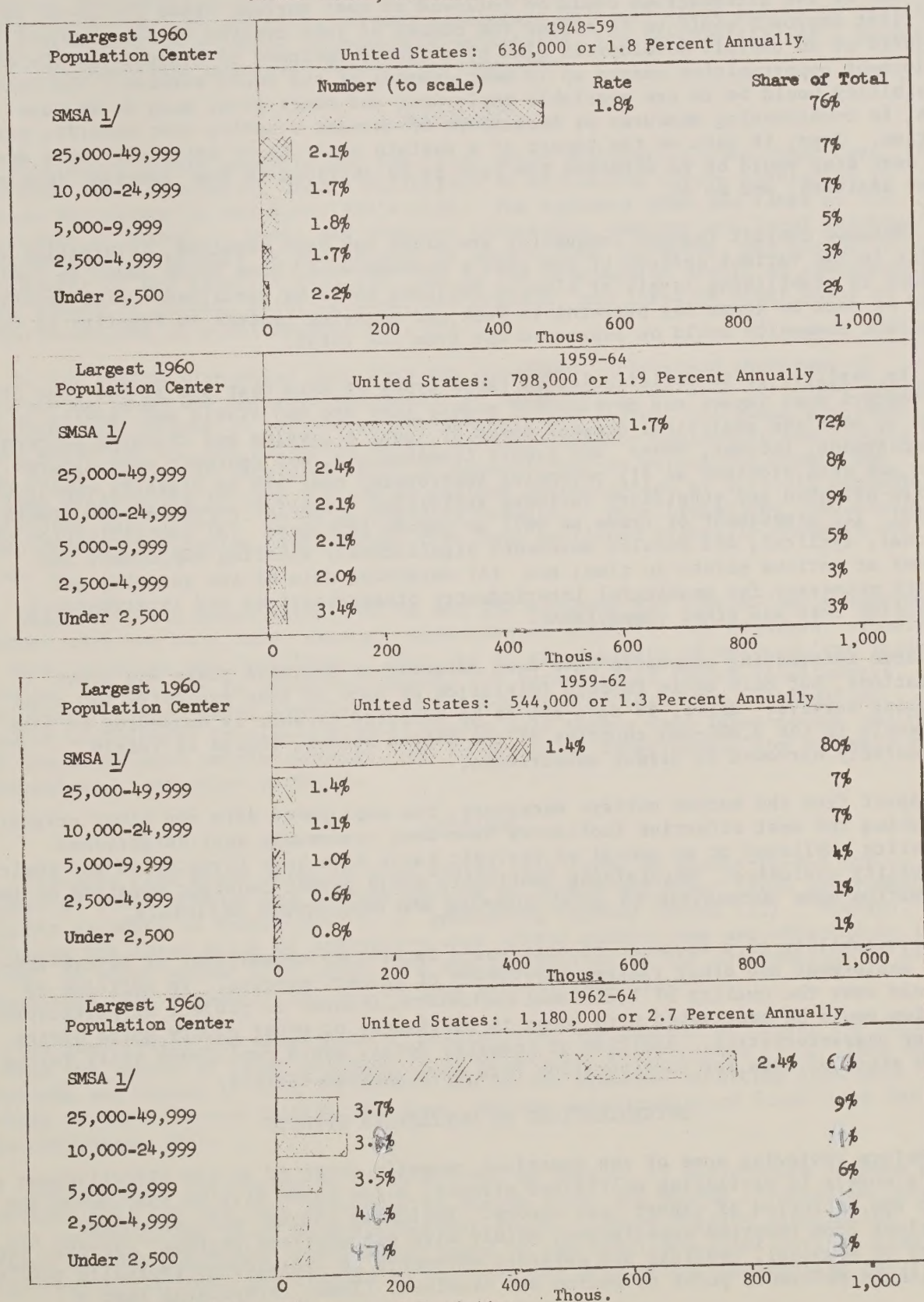


Figure 3

WEIGHING IMMEDIATE ALTERNATIVES

One of two alternatives could be followed to meet current needs for local data. The first approach would be to expand the number of jobs created by some project, projects or an overall development plan by a factor designed to account for the extra employment opportunities opened up to meet demands of the added workers. The other possibility would be to use available employment and other data, much as we have done, in constructing measures or indicators of changes occurring over specific periods of time. Then, if data on the impact of a certain activity or activities were desired, the next step would be to allocate the part to be ascribed to that program, industrial plant addition, and so on.

Because overall changes frequently are minor and even negative, information on shifts in the various sectors of the area's economy would have to be added so contributions to stabilizing levels or slowing declines could be specified. Also required would be data on commuting patterns to work and shopping centers so benefits to the immediate community could be separated out from the total.

In reality, it is deficiencies in these types of data that are at the root of the concern over impact and development models that are too static and lacking in depth to meet the analytical demands posed by today's complex and changing patterns of employment, incomes, money and credit transactions, and consumer expenditures. Added are such problems as (1) perennial controversy over how to classify construction, service-oriented and subsidiary business activities, transfer payments, and grants-in-aid; (2) assessment of trade as well as income leakages; (3) identification of seasonal, cyclical, and secular movements significantly altering employment and incomes at various points in time; and (4) obtaining data of the quantity and quality necessary for meaningful interindustry disaggregations and interregional production cost and other comparisons.

Some interesting proposals have been advanced to minimize these and other limitations, but only again through initiation of more or less expensive and time-consuming surveys. Hence, if data are to be supplied on what is happening to jobs and people in the 3,000-odd counties of the United States, choice is fairly conclusively narrowed to direct measurement.

Apart from the modest outlays necessary, the employment data and other criteria furnishing the most effective indicators have been reasonably well established. Statistics published on an annual or periodic basis have been inventoried and their reliability evaluated. Maintaining continuity would permit constant updating of the information made accessible to local planning and development officials.

Availability of a sequence of data would facilitate comparisons of before-and-after employment and other factors expressive of project success. In addition to controls over the quality of individual indicators, changes in project or participating counties could be contrasted with those in contiguous or other county units having similar characteristics. Addition of industry detail would contribute still further to the stock of data for incorporation into more complex surveys.

DETERMINATIONS OF MULTIPLIER EFFECTS

Before reviewing some of the questions recently directed at the effectiveness of today's models in estimating multiplier effects, a few words will be said about the origin and evolution of export base theory. Following through with extensive quotations from reported experiences, mainly with metropolitan regional surveys, the impacts of seasonal, cyclical and episodic movements on projections typically resting on a single reference point or period are examined. Then, recognizing that a

constant and unchanging relationship between employment and earnings in basic as contrasted with nonbasic industries generally has been assumed, the implications of the rising ascendancy of the service industries in the economy -- national and local -- are discussed. As, in addition, current literature on money flows points to velocity as well as volume as a factor in community well-being, the desirability of a restatement of the Keynesian multiplier formula is suggested.

Chronology

Multiplier theory probably had its first major application when Homer Hoyt, the well-known urban economist, used a multiplier in estimating future population in northern New Jersey in the late 1930's (15). The emphasis then and later on the dichotomies of growth -- basic and nonbasic industries, exports and local services -- had historical precedents in the primacy of agriculture, forestry, and mining in the conquest of the frontier (23, 25), and in the accelerator effect of manufacturing on the growth of cities, first in Lower New England, and later in other parts of the Northeast, and in other regions (16, 29).

In the period with which Hoyt then was concerned, widespread shutdowns of factories and mines and deepened depression in agriculture had also seriously affected employment and incomes in service or residentiary industries, including government. During World War II, the catalytic effect of full-capacity employment was blunted by wage, price, and other controls. With release of pent-up purchasing power, the impulses originating in such factors as wartime concentration of aircraft production in southern California -- as an outstanding example -- were translated into expansions of employment, population, and incomes that have continued virtually unabated ever since.

Meanwhile, the added stimuli of VA and FHA programs for single-family housing, together with the baby boom, created unprecedented needs for new highways, schools, and other services and facilities. This led to rapid growth of metropolitan regional planning, and in turn to increased demands for forecasts of future requirements. Development of high-speed computers and introduction of ingenious mathematical formulas contributed to elaboration of export base theory into input-output analysis, with its associated matrix concepts, and to design of other models for analysis of interregional trade-flow patterns.

Critique

Probably Park would agree to also adding such items as grants-in-aid for support of local schools and various outlays of county and other local governments to transfer payments as exogeneous, i. e. generating further income (21). Perhaps, reviewing the total array of activities that affect rather than are affected by local income, he would concur with Leven (14) and Meyers (15) in the desirability of simply recognizing that economies can and do grow without exporting.

In questioning the usefulness of multipliers, the concern of Hoover and Chinitz is with the impact of trade leakages on interindustry coefficients (12). That of Wadsworth and Conrad is with employment and income leakages resulting from such factors as expenditures outside the area, and the substitution of local jobs for outside employment (27).

Norton cites discrepancies of 25 percent as typical of differences between data developed from the New York Metropolitan Region study and census information (19). In his review of the Upper Midwest Economic Study, Tiebout reports disparities between nonfarm employment projections based on the model and those derived from simple extrapolations, and remarks on the need for developing supplemental materials

to point up underlying conditions and trends (26).

Sampling has been introduced into projected surveys in Wisconsin and Tennessee to meet reservations about the multiplier approach being static and lacking in depth (1, 6). In addition to necessitating collection of fresh sets of basic data each year, surveys would be restricted to market-oriented activities. Not only would the public sector be omitted, but also health, hospital and other rapidly expanding services that are semipublic in character.

Seasonal, Cyclical, and Episodic Influences

More will be said in a few minutes about the impact of increasing divergencies in trends in employment and income between service and goods-producing sectors of the economy. Especially when data collection and processing must necessarily be limited to a single base period, certain seasonal, cyclical and episodic forces can contribute to equally serious inconsistencies in analyzing trends and forecasting future employment and other levels. Such variations have particular import because statistics readily available often are not for the entire year, but only for a particular reference point or period, say April 1 for the 1960 Census of Population, and mid-March for covered employment from the 1959 County Business Patterns Reports.

Major work stoppages show up only occasionally in national statistics, and so much is known about the incidence of seasonal and cyclical movements in manufacturing and other industries as to make the necessary adjustments a matter of routine (fig. 4). At the area or local community level, however, fluctuations in employment and earnings not only are typically greater, but the necessity for their addition to data schedules is only beginning to be recognized (12).

If a base period covers an entire year, the seasonality identified, for example, with fruit and vegetable harvesting, food processing, and tourism, should pretty well average out in overall statistics. But if a severe freeze cost all of a fruit crop in that year, there would be income losses to producers to consider on top of the elimination of labor and other requirements for harvesting and disposition.

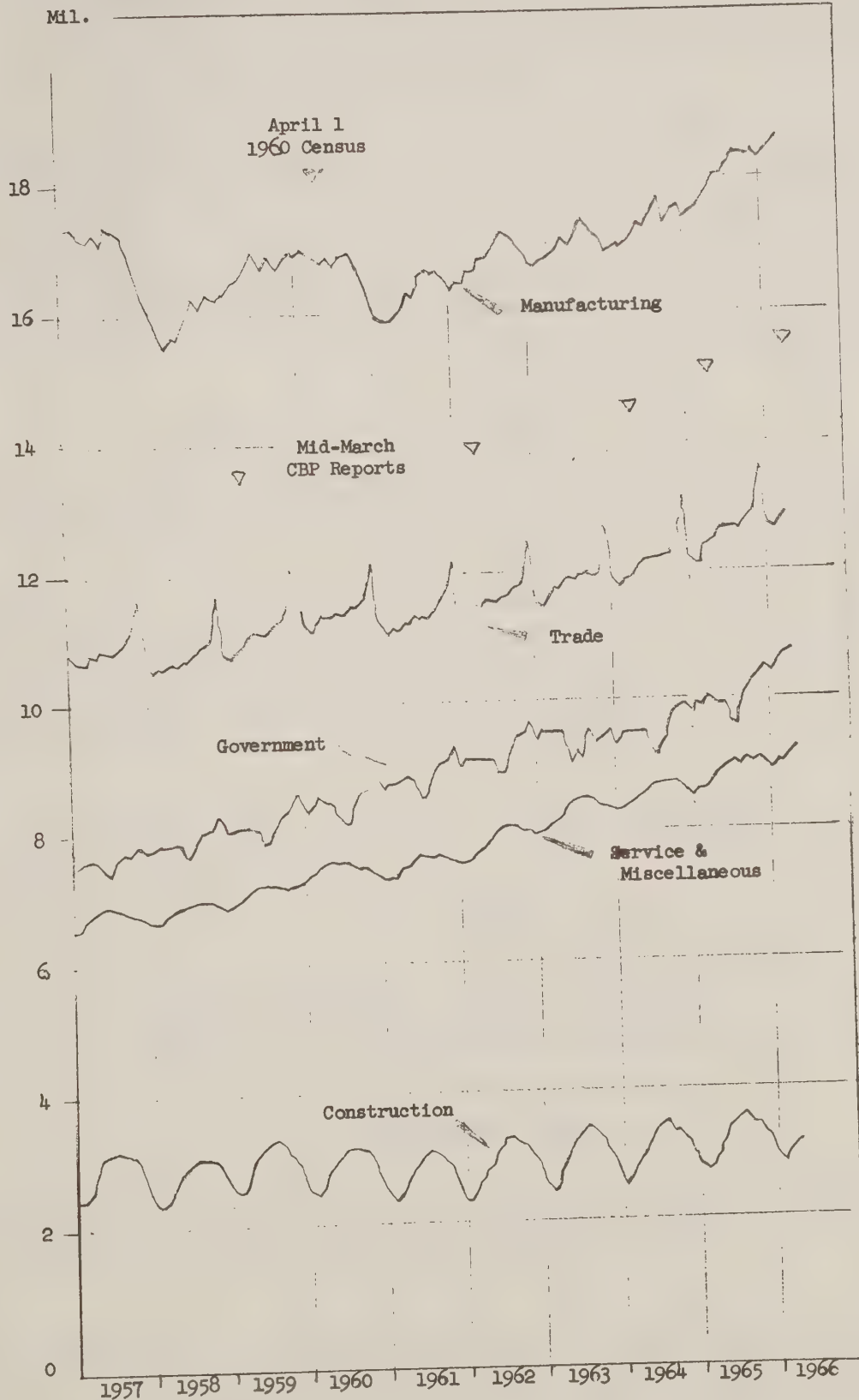
A steel plant or other major employer could be working full capacity in the survey year, be forced to cutback payrolls sharply the next for lack of orders, and be closed because of obsolescence the third year. Additional employment to construct a modernized replacement in a new location would be followed by requirements for a work force to operate the new facility. Even then, any appreciable bulge in employment and population during the construction phase should be adjusted before attempting to chart trends or plot future expectations.

Increasing Ascendancy of the Service Industries

Sometime in the 1950's, services -- including general government as well as the private and semiprivate sectors -- superseded the commodity-producing plus distributive industries as the predominant source of employment of the Nation's work force, and the gap has progressively widened since then (8). Without getting into accompanying changes in shares of GNP and personal income, evidence that this national trend is reflected in an increasing ascendancy of service industries in local economies adds further urgency to arguments for widening data coverage of small area surveys.

Outmigrations, liquidations, and shrinkages of major manufacturing facilities in the postwar period resulted in marked reductions in jobs in such central cities as Pittsburgh, Cleveland and Chicago. These declines were offset only to the extent employment expanded in the rest of the private sector and in government.

EMPLOYMENT IN SPECIFIED NONAGRICULTURAL INDUSTRIES, 1957-66



Adapted from Monthly Reports
Employment and Earnings

Figure 4

Major increases associated with the expansion of facilities and services of local government and the self-employed in business and the professions are not shown by figure 5. Nevertheless, the data that are charted on covered employment furnish some idea of the degree to which job additions in the residential suburbs that frequently emerged during these years were tied to home building, local transportation and utilities, and construction and staffing of shopping centers and schools.

As a rule, the coming of steel, aluminum and other major manufacturing facilities to strongly rural areas contributed to only minor gains at most in employment in business, professional, and community services. Generally, previous underemployment among local merchants and tradesmen had been such as to obviate adding help to take care of the new demands. Also, as many as 50 percent or more of the persons employed at the new facilities might live in other counties, and thus reduce the proportion of payrolls spent locally. The impact on the economy of the immediate area was further diluted as residents -- old as well as new -- followed the trend toward shopping in larger communities, particularly for major items, and toward similar reliance for hospital and related services.

Redefining the Keynesian Multiplier Formula

All in all, the self-generative form of growth that is occurring -- notably in the communities with the more viable economies -- suggests the desirability of a restatement of the Keynesian multiplier formula to include the velocity of spending and responding actions.

Weintraub's latest book (28) adds significantly to the theoretical knowledge of the relationships between employment growth and income distribution. But, as his emphasis is chiefly on correlations between wages, profit margins and capital formation -- not on revision of the existing multiplier theorem -- the best solution still might be to follow the lead implied in Fuchs' research, namely, to analyze comparative changes in local growth in various service as contrasted with goods-producing and associated industries.

Conceivably, the elaboration of data requirements that would result might compound costs to prohibitive levels. But, even if this were not true, indications of the added impact of greater financial and business transactions rates in distinguishing growth from stagnant or declining economies merit a try at applying the suggested modification of the basic Keynesian formula.

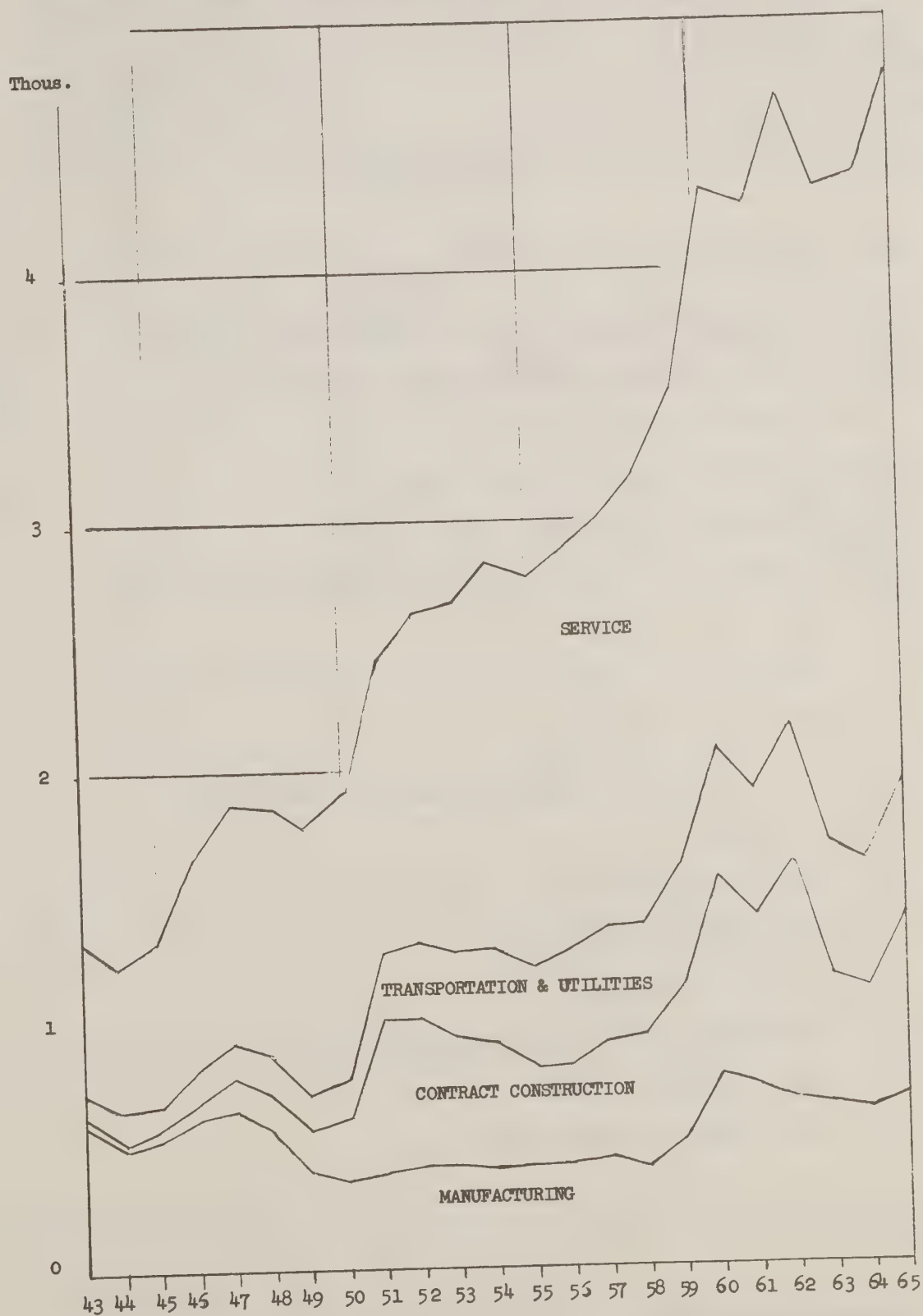
For this application, Pierce's method ^{5/} for charting money flows in the Nashville Metropolitan Area seems an appropriate point of departure. Most necessary probably would be such additions to small area financial and business data now available as would furnish requisite materials on individual banking and especially credit transactions.

DIRECT MEASUREMENT

In an exceedingly modest way, direct measures of economic growth at small area levels serve the same purpose as our system of national economic indicators (13), namely, in acting as barometers of change in the economic climate. Such indicators are and should continue to be unambitious in design and simple and inexpensive to

^{5/} Pierce, J. E., Financial Theory of Local Development: A Money Flows Analysis of the Nashville Economy. Paper presented at the Annual Meeting of the Southeastern Regional Science Association, University of Maryland, April 1-2, 1966.

CHANGES IN EMPLOYMENT IN PRIVATE NONFARM INDUSTRIES, CLERMONT COUNTY, OHIO, 1943-65



Adapted from Reports of Covered Employment by Ohio Bureau of Unemployment Compensation.

Figure 5

construct. Comparatively limited local data are available, and additional outlays would be difficult to justify, at least for those many counties in nonmetropolitan areas in which information is needed mainly for overall guidance purposes.

Among others, Andrews (1), Corry (6), and Hochwald (11) have done considerable spade work in enumerating kinds of data compiled and indicating omissions and

MEASURES OF ECONOMIC GROWTH
OF SMALL AREAS

PRIMARY INDICATORS

- A. EMPLOYMENT (AND EARNINGS) IN PRIVATE NONFARM INDUSTRIES
- B. TOTAL LABOR FORCE (THE EMPLOYED AND UNEMPLOYED)
- C. POPULATION (AND HOUSEHOLDS)
- D. AGGREGATE (AND PER CAPITA) INCOMES
- E. CONSUMPTION EXPENDITURES: RETAIL SALES
- F. MONEY AND CREDIT SUPPLIES: BANKING DEPOSITS (BANK AND S&L)

SECONDARY INDICATORS OR DATA QUALITY CONTROLS

- A. VITAL RATES
- B. SCHOOL ENROLLMENTS
- C. MOTOR VEHICLE REGISTRATIONS
- D. UTILITIES CONNECTIONS
- E. RESIDENTIAL BUILDING AND DEMOLITION PERMITS
- F. STATE INCOME TAX RECEIPTS
- G. STATE SALES TAX COLLECTIONS

Figure 6

inconsistencies. Details on needs, new programs, and new publications are carried in Small-Area Data Activities, issued periodically by the Bureau of the Census (20). The administrative supplement to the annual Book of the States contains names and related information on data generating and other agencies, catalogued by function (7).

Consistent with the specification that costs be minimal, local growth indicators should be held to those measures -- six are listed as primary indicators by figure 6 -- that have generally been rated as especially useful for yardstick purposes, and that would require minor additional processing to assure completeness and reasonable consistency.

Data for Initial Yardsticks: Covered Employment and Earnings

In our choice of data on covered employment and earnings for constructing the set of low-cost but fairly reliable local growth indicators initially sought, the fact that only minor modifications of published statistics would be required was an important consideration. Another key factor was the traditional position of wage and salary workers and pay in private nonfarm industries -- the data generally supplied -- as bell-wethers of economic change, regardless of locale.

Nationally, work for wages or salaries in the private nonfarm sector provides employment for more than three-fifths of the total labor force, and supplies more than half of all personal income (10). In the past, contributions from this sector to the economy of many rural areas were relatively unimportant. But, as incomes from farming, mining, and lumbering have been reduced, ability or inability to attract new payrolls has determined whether local merchants and service firms could expand, would have to trim payroll and other costs, or be forced to close shop.

An Important Additional Measure: Current Labor or Work Force

Noteworthy progress has been made by State Employment Security agencies in developing estimates of current labor or work force. At last count, some type of recent area estimates had been prepared in 40 States. Many were by counties or had been broken down to very small labor market areas, and represented the initiation of a series, rather a single-time activity.

Unlike estimates of population, for example, in which only school enrollment data are applied to adjust for net migration, total civilian labor force includes representation not only of families with children in school, but of newlyweds and other couples or family groups without children of school age. Also covered are the many youths and other unattached individuals entering the labor market each year.

Coupled with increased accessibility of basic statistics, the directness and strengths of the tie-ins with area dynamics make change in the local work force a new and highly useful tool for gauging the extent to which individual labor surplus or deficit areas are losing or gaining workers -- and usually population.

Population

Annual or periodic estimates of population by counties, and frequently for larger municipalities or other subcounty areas, are made by at least one and often more agencies in every State (5). ^{6/} Annual population estimates are also included in publications of the three major commercial outlets. ^{7/}

^{6/} In North Dakota, the one State for which no county estimates were reported by the reference cited, 1964 population data are listed in North Dakota Growth Indicators, by the North Dakota Economic Development Commission.

^{7/} Sales Management, Standard Rate and Data Service, and Editor and Publisher.

Table 1.--Changes in population as determined from estimates by different methods,
Ohio statewide and selected counties, 1960-65

Unit	Amount				Rate					
	1960-65 1/				1960-65 1/					
	Method				Method					
	One	Two	Three	Four	One	Two	Three	Four		
State:	Thous.	Thous.	Thous.	Thous.	Pct.	Pct.	Pct.	Pct.		
Four methods -----	2/	1,614.4	1,250.4	1,365.8	2/	17.4	16.7	12.9	14.1	
Bureau Census -----	1,759.8	1,074.0	1,074.0	1,074.0	22.1	11.1	11.1	11.1	11.1	
Difference -----	2/	542.4	176.4	291.8	2/	6.2	5.6	1.8	3.0	
County:										
A - Franklin -----	179.6	191.6	202.6	133.6	123.6	35.7	28.2	29.8	19.7	18.2
B - Cuyahoga -----	258.4	220.0	155.8	190.0	286.6	18.6	13.4	9.5	11.5	17.5
C - Hamilton -----	140.2	143.2	145.2	98.0	109.0	19.4	16.7	16.9	11.4	12.7
D - Stark -----	57.2	49.6	50.0	40.4	40.4	20.2	14.6	14.8	11.9	11.9
E - Greene -----	35.8	37.2	35.8	28.0	17.0	60.7	39.7	38.2	29.9	18.1
F - Clermont -----	38.3	42.6	36.6	27.4	14.0	90.9	53.5	46.0	34.4	17.6
G - Darke -----	3.8	3.8	4.2	2.0	4.4	9.1	8.4	9.2	4.4	9.7
H - Athens -----	1.2	1.4	9.8	-0.6	3.2	2.5	3.0	20.8	-1.3	6.8
I - Perry -----	-1.1	-1.4	-1.4	-2.4	2.2	-3.9	-5.0	-5.0	-8.6	7.9

1/ Converted to 10 year equivalent for direct comparison with 1950-60 changes.

2/ Not available.

Such factors as the relative immobility of certain components reduce the effectiveness with which measures of population shifts reflect area growth or viability. Also creating much more of a problem of modification or revision than data generated under the OASI and State Unemployment Compensation programs are differences in methods of estimation -- ranging from simple arithmetic extrapolations to complete census counts.

How application of differing estimating procedures can result in sharp variations in absolute and relative changes -- and complicate reconciliation and recomposition processes -- is illustrated by table 1. Further uncertainty as to reliability is introduced by the comparatively wide disparities shown between statewide changes in the four instances and those derived from Bureau of the Census statistics.

Incomes

Inasmuch as revisions in population may often be also required, reference to per capita values will be omitted. For that matter, pluses and minuses in area income aggregates -- by including effects of changes in average wage and other receipts as well as in recipients -- furnish an even more effective measure of economic viability than either shifts in labor force or population.

Unfortunately, far fewer State agencies are preparing income as contrasted with population estimates, with the tally so far showing activities underway in only about half of the States. This total must be discounted further by instances in which data are unavailable for years later than 1962.

Qualitywise, the various estimates reflect the detailed attention given to the transfer of payroll statistics on covered employment from place of work to residences of individual workers, and to allocations of incomes from other sources (2, 22). As somewhat comparable techniques are applied in deriving the estimates published through commercial channels, quality again is better than for many population estimates.

Unlike the time series usually available from estimates of State agencies, only estimates for succeeding years are adjusted as new benchmark data become available from sources such as the 1963 Census of Business. Also introduced into estimates from the three sources are deductions for personal tax and certain non-tax payments to the Federal and State Governments.

Making this type reduction gives a somewhat truer picture of the incomes local people actually have to spend or save. But, as with certain other breakdowns of data to small areas, limited reference materials are available, especially in those States not levying an income tax.

In effect, these deductions may simply offset additions made for such nonmoney items as the value of food and fuel produced and consumed on farms, and the rental value of farm and certain other dwellings. Whatever the net balance would be in a given area, much extra work would be required to either revise current income estimates back through preceding years, or convert 1959 money incomes as listed in the 1960 Census of Population reports to a disposable personal income equivalent.

Any cross referencing of income data at local levels would have to be with retail sales rather than total personal consumption expenditures. Keeping this possibility in mind, structuring later estimates to 1959 benchmark statistics, necessarily adjusted beforehand for underreporting, would not only be less time consuming, but add to the usefulness of the two indicators.

Retail Sales and Personal Consumption Expenditure Levels

Spelling out the relationship of retail sales to total personal consumption expenditures, a national ratio of slightly less than two-thirds will vary by locality as purchases in retail establishments take a greater or lesser fraction of the consumer's dollar than other outlays.

Despite these variations between areas and some decline from year to year in share of total consumption outlays, changes in retail sales continue to furnish another and effective measure of the economic health of individual communities. Benchmark materials are available from the two latest Censuses of Business -- spaced five years apart in 1958 and 1963 -- for determining recent shifts. Statistics for interim years and for 1964 and 1965 are contained in publications of the three commercial sources -- with reservations on quality of both overall estimates and individual breakdowns applying specifically in those states in which establishment reports on sales tax receipts are unavailable for control purposes.

In tooling up for a 6-area evaluation survey of the impacts of selected Area Redevelopment Administration (ARA) projects a few years ago, examination exhibited very little if any correlation between yearly sales of automotive and certain other groups of establishments and local changes in employment and payrolls.

The lack of relationship could have stemmed from procedures applied in estimating group sales, but fairly close proximity in each instance to a major regional shopping center, plus type of items sold and relatively high per unit prices, suggested sharp and unpredictable fluctuations in annual sales as the explanation. When sales then were totaled for groups of establishments less subject to outside competition, and stocking comparatively low cost items but making frequent sales, combined values showed marked sensitivity to year to year changes in area incomes.

Adding together sales from these six groups -- food stores, gasoline service stations; apparel and accessories shops; eating and drinking places; drug and proprietary stores; and other retail stores -- would contribute to separating out the part of total sales volumes in the growth areas resulting from the inflow of shoppers from subsidiary localities. In the many areas in which sales to nonresidents are minor, these special data would aid in determining how much of total income receipts were spent locally.

Banking Deposits and Money and Credit Standing

The combined deposits in commercial banks and savings and loan associations give a fairly good indication of the individual community's money and credit standing, thus adding another key criterion of area growth to the measures discussed this morning. The relationship again is not precise, for after all, people bank as well as shop elsewhere, and changes in savings patterns also are involved.

In financial and other centers in which major corporate and other accounts are concentrated, what the data on change would show in part would be shifts taking place in relative positions. In most localities, however, any such accounts are usually restricted to the balances required to meet payrolls and related expenses. Consequently, other than as conditioned by the two exceptions noted, changes in the level of deposits closely approximate shifts in aggregate income.

Statistics for all commercial banks are published biennially by the Board of Governors of the Federal Reserve System, the latest being for June 15, 1964. Reports by the Federal Home Loan Bank Board are not periodically scheduled, but data from records maintained for member and other savings and loan associations are fairly accessible for rounding out statistics on banking deposits for small areas in this and other years.

QUALITY CONTROLS

A strong array of controls can be brought to bear in screening out inconsistencies and otherwise restructuring population, income, and other basic statistics. Referring back to figure 6, such secondary indicators as are represented by vital data, school enrollments, and motor vehicle registrations are available for most counties. Particularly when not applied in previous estimating processes, they can be useful for preliminary screening of doubtful figures.

County or area correlatives supply tools for probing into the complex and shifting forces shaping local responses to national movements in economic activity. They serve another and not unimportant purpose in furnishing a second order of controls over quality.

COUNTY OR AREA CORRELATIVES

RURAL URBAN COMPOSITION

LARGEST 1960 POPULATION CENTER

PERCENT 1960 POPULATION URBAN
(RURAL)

INCOME LEVEL

MEDIAN FAMILY INCOME
1959

QUINTILE

INCOME CLASS

ECONOMIC VIABILITY

CHANGES MEDIAN FAMILY INCOME
RELATIVE U. S. INCREASE, 1949-59

NET POPULATION MIGRATION RATIO
1950-60

SIZE OF THE ECONOMIC BASE

AGGREGATE INCOME, 1959

COVERED EMPLOYEES IN PRIVATE
NONFARM INDUSTRIES, 1964

Figure 7

Processing data by subregions, labor market areas, or some other multicounty or intermediate form of areal entity saves time and reduces certain complications in allocating statewide statistics to counties. At this level, the impacts of work commutation patterns on differentials in employment and earnings between locations of work and those of residence tend to be minimal. Thus, a third set of controls is furnished for selecting out estimates not conforming to prevailing relationships between changes in total employment, labor force, and population.

There still remains a need in making final allocations to counties for applying such techniques as are required to translate employment and earnings data from the places of work at which reported to those -- within the county, in adjoining counties or possibly outside the overall area -- where individual workers reside. In meeting this requirement, data on retail sales and banking deposits would be utilized both as controls and as indicators of changes in consumption levels and money and credit standing.

County or Area Correlatives

The county or area correlatives that we have set up for relating employment and other shifts to such area characteristics as rural-urban composition, income class, economic viability, and size of the economic base are listed by figure 7.

Such employment and related changes are typically associated with specific locations, income levels, growth rates, and scales of economic activity. So, when apparent contradictions show up in processing, examination should quickly pinpoint the reason -- addition of a new factory or construction project, or conversely, the shut-down of a mill or completion of road-building or similar activity. If not, the unexplained disparities can be subjected to immediate review, not held over to a final evaluation of the consistency of the individual growth measures.

Contribution of Intermediate Areal Entities to Data Processing

In a recent exploration of methods for examining relationships between employment and unemployment and population changes in the Appalachian Development Region, piecing data together by subregions proved less time consuming and otherwise more effective than initial breakdowns by counties would have been. Also obviated was the immediate necessity for resolving the influence of work commutation patterns on local distribution of employment and earnings, a need underscored by Poole's study of the characteristics of employees of the Oklahoma City Air Material Command (23).

That this allocation is required but can be deferred rests on evidence from this and other studies that pull or attraction not only is minor in more outlying counties, but that counter movements involving adjoining labor market areas usually balance or equalize each other. This confirmation has further significance in that an evaluation of changes, if any, in labor force participation rates provides a quick checkout of estimates of both labor force and the total population for an entire area.

The changes in participation rates shown by table 2 may reflect either short-term or long-run reductions through attrition of the elderly and unemployable, higher ratios of unattached individuals to families among migrants, buildup of population under work age, etc. If such explanations cannot be verified, examination then is called for of estimates themselves. This examination in turn should contribute to some immediate and clarifying revisions, particularly when existing population estimates include none or only partial accounting for current migration tendencies.

Table 2.--Population, labor force and labor force participation, eastern Kentucky Coal Fields, 1950-65 1/

Year	Population	Labor force	Percent population : in labor force
	Thous.	Thous.	Pct.
1950 -----	400	101	25.3
1951 -----	405	101	24.9
1952 -----	375	92	24.5
1953 -----	355	85	23.9
1954 -----	330	77	23.3
1955 -----	325	73	22.5
1956 -----	330	68	20.6
1957 -----	335	67	20.0
1958 -----	325	65	20.0
1959 -----	310	62	20.0
1960 -----	310	60	19.7
1961 -----	300	59	19.7
1962 -----	300	58	19.3
1963 -----	300	58	19.3
1964 -----	300	58	19.3
1965 -----	295	57	19.3

1/ Adapted from reports of OASI and UI covered employment; Kentucky Department of Employment Security statistics on unemployment; Kentucky Department of Health and Department of Sociology, University of Kentucky, population estimates; and data from various U. S. population and other censuses.

Interchanging Data between Places of Work and Residence

Referring to figure 8, if more satisfactory data particularly on current incomes are to be supplied for the county or local area, the most pressing need is for resolution of the problem of interchanging employment and payroll data between place of wage or salary disbursement and that of residence. This entire question is not only at the root of concern over employment and income leakages, but has continued to pose by far the greatest single obstacle to deriving satisfactory annual income estimates by counties.

The problem can be made more manageable by first processing all requisite data on the basis of subregions or labor market areas, the procedure just discussed. Some aid in allocation is obtainable from data on intercounty commuting patterns in the 1960 Census of Population. But the effectiveness of help from this source is reduced by changes since then not only in the number of commuters crossing county boundaries to work daily, but in the number of householders electing to relocate closer to new places of employment.

In speaking of retail sales and bank debits as local growth indicators, special stress was laid on their adaptation to meeting requirements of major shopping and financial centers as contrasted with areas elsewhere. This versatility and

flexibility should place them in equally good stead in performing the added role of acting as instruments in effecting the desired data interchanges.

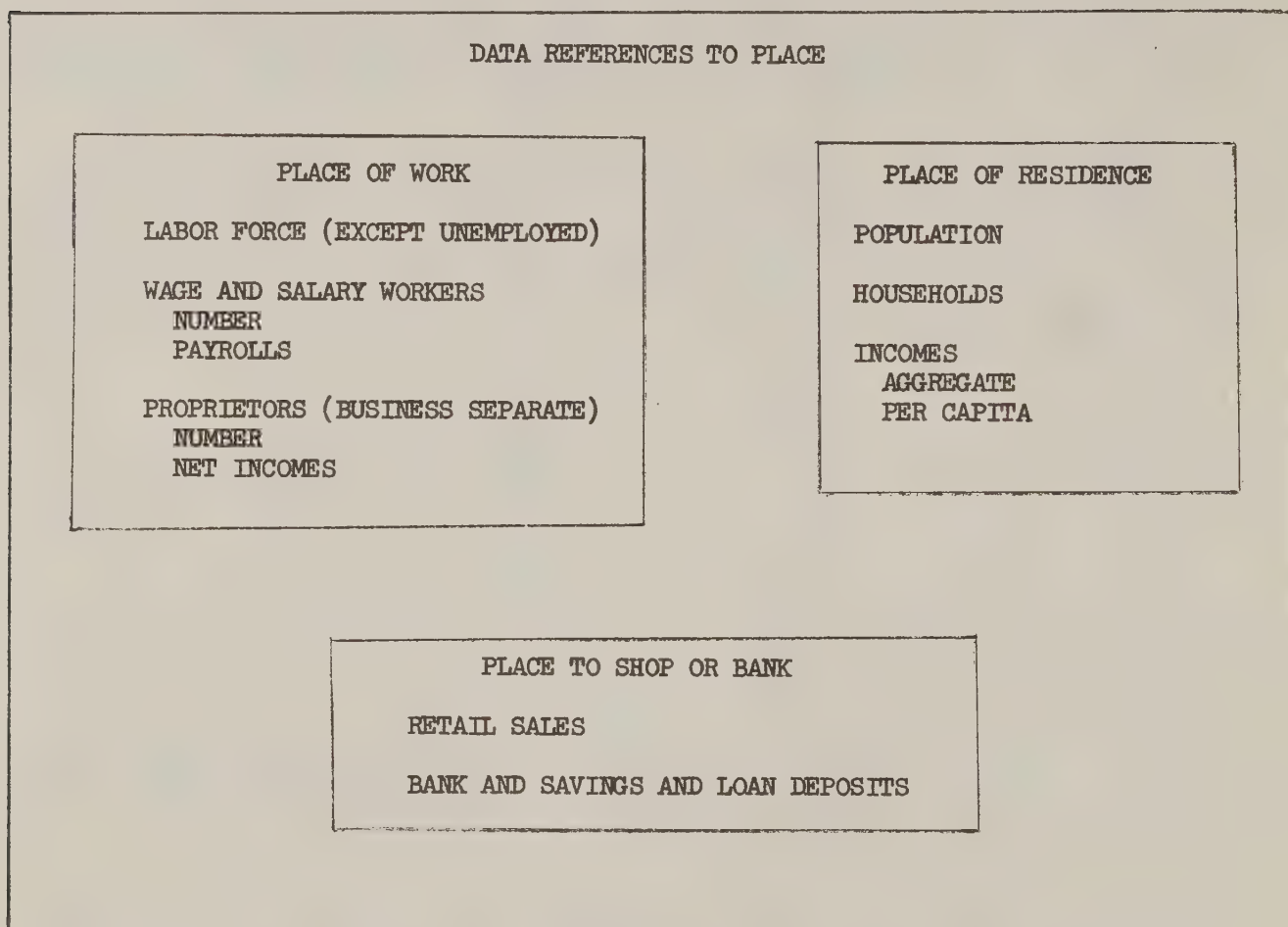


Figure 8

TRACING THE MIGRATION OF TODAY'S YOUTH

More than in the past, a comparatively large number of entire families change counties of residence each year (4). Then, too, the depopulation of farming, mining and other labor surplus areas frequently extends to established households as well as to newly formed families and the unattached. Yet, youth leaving home to take jobs, attend school or enter the military service continue to represent the most mobile element in our population -- albeit also constituting the group concerning whose area-to-area movements the least is known.

This lack of information on youthful migration affects reliability of current population estimates, a weakness that unless rectified shows up most prominently in estimates for counties with a sizable and expanding share of their population consisting of the student body of some college or university. A smaller number of counties experience fluctuations in total population as the number of military trainee personnel varies between periods of crisis and relative tranquility.

Access to data on changes in the labor force would contribute to identifying the sources of the buildup -- youth from the home community and youth and others from outside -- in the labor deficit areas shown by figure 9. Accounting for changes in school and military populations, the latter consistent with security requirements, would help in determining increases or decreases in the few hundred counties at most in which such populations substantially affect totals. Even with schools and

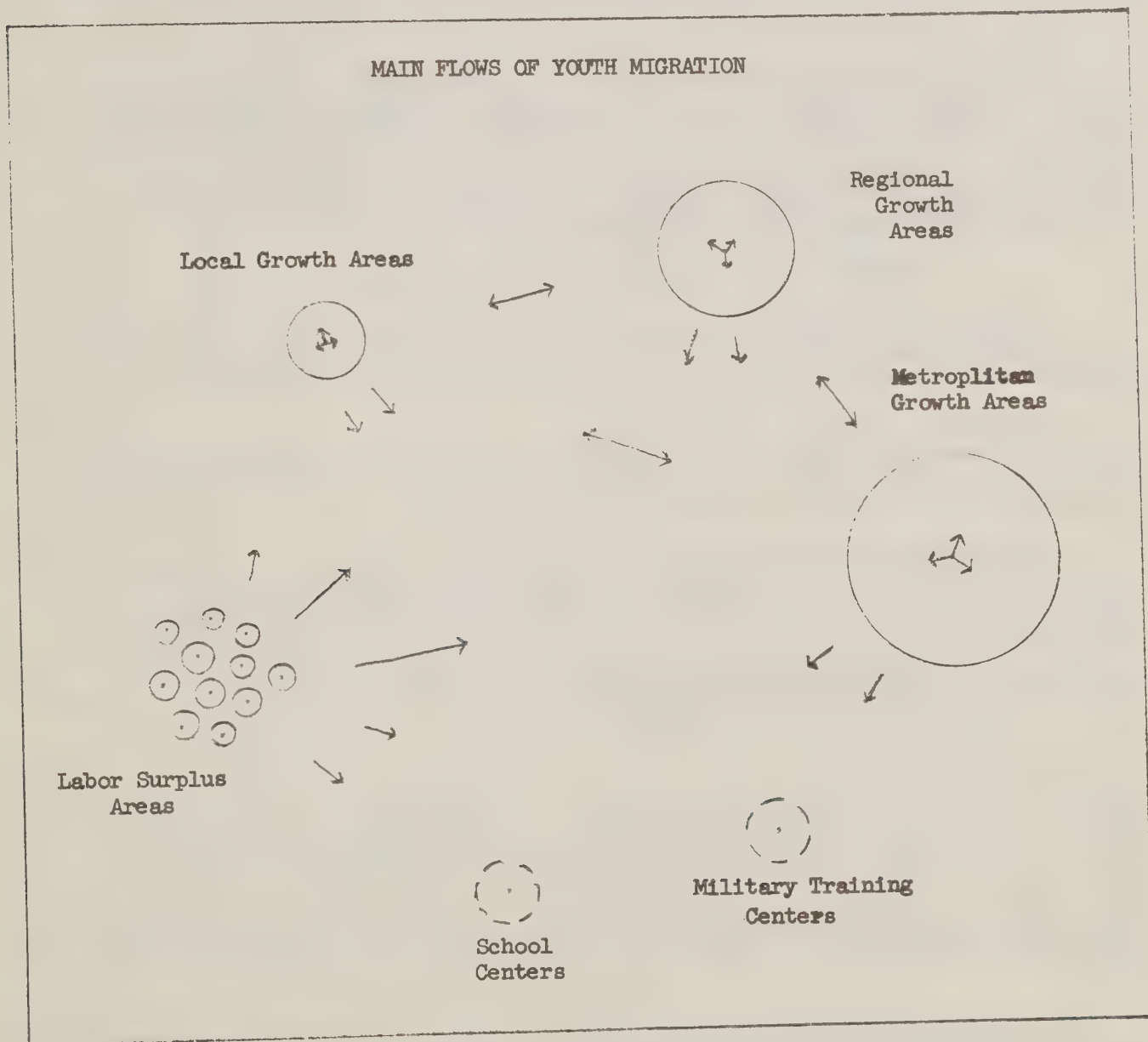


Figure 9

military installations adding only occasional complications, overall changes in the work force in the labor surplus areas -- by not differentiating between youth and other components -- again would give a fairly close but still only approximate measure of accompanying shifts in population.

Adding Data on Youth's Movements

From what has just been said, adding specific data on the movements of today's youth is desirable not only in the interests of improving current population estimates for local areas, but because of the importance of the movement in itself. Possibilities include the use as in New Hampshire of such controls as those developed for measuring additions of high school graduates and others seeking entry into the labor force, as well as of those obtaining their first job, against losses from retirements and other causes (17).

In North Carolina, the Department of Public Instruction has been conducting follow-up surveys of high school graduates to determine numbers entering labor market and other areas since 1960 (18). For those entering college in this or other States, an alternative would be to utilize data on counties of origin supplied by registrants. For males, records maintained by State Selective Service Systems represent a virtually untapped reservoir of information on present places of residence, draft status, current occupation, etc.

EVALUATING THE IMPACTS OF COMMUNITY DEVELOPMENT ACTIVITIES

Instead of the customary conclusion, a few words will be added to sum up the role of direct measurement in evaluating the contributions of various development activities to community growth.

From earlier remarks, it should be fairly clear that, unlike multiplier formulas, direct measurement supplies no convenient figure of set of figures on the number of jobs created, incomes provided and people added by specific development activities, whether publicly sponsored, privately initiated, or both.

What can be furnished is a data sheet, cataloguing and briefly evaluating employment and other patterns, before and after additions of the projects in question. Many opportunities exist for comparisons between counties in the same general area and having similar residential, income, and other characteristics. As a result, instances should not be unduly difficult to find that can serve as precedents for evaluating impacts of projects scheduled for future location in areas differing widely in economic attributes.

Not mentioned until now is the fact that such projects also vary widely in their capabilities to add directly or indirectly to local employment, payrolls, and incomes, either in the immediate period or even within 10 to 15 years or so. Once construction, for example, of a major water storage facility is completed, many years may elapse before development of recreation or related uses replaces losses stemming from initial displacement of economic activities in flooded areas. If succeeded by the addition of one or more new industrial plants, a project for municipal water supply and waste disposal may show almost an immediate pickup in local jobs and incomes.

In the Coastal Plain area of south central Georgia, successive staging of construction of Interstate Highway 95 by comparatively long sections contributed to a much more rapid and substantial pickup of permanent employment enroute than would have been true if it had been built a few miles -- located here and there -- at a time. Unless accompanied by action to create additional local jobs, building a vocational high school may simply accelerate the pace at which each new graduating class finds jobs elsewhere.

These remarks are not introduced to make the task of evaluation sound difficult or formidable. They are made in part to emphasize the need for probing for answers, as an alternative to expecting solutions to appear magically at the end of a computer run. They are also added to underscore the virtually uncharted opportunities opened up to explore all of the implications for the future attending the addition of new programs, facilities, jobs and ideas to a variety of community or small area environments.

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